

WHAT IS CLAIMED IS:

1. A metal halide lamp, comprising:
  - a discharge container including a discharge space and sealing sections formed at both edges of the discharge space;
  - 5 a pair of electrodes arranged to face each other within the discharge space and held in the sealing sections; and
  - a discharge medium sealed in the discharge container, containing a light-emitting material formed of a metal halide and a rare gas, and essentially free from mercury,
  - 10 wherein the amount of water contained in the metal halide in the extinguishing stage of the metal halide lamp is not larger than 50 ppm.
2. A metal halide lamp according to claim 1, wherein the metal halide includes at least a halide of zinc.
3. A metal halide lamp according to claim 1,
  - 20 wherein raw material of the metal halide having a water content not higher than 100 ppm is sealed in the discharge space.
4. A metal halide lamp according to claim 3, wherein a vacuum heat treatment is applied to the raw material of the metal halide.
- 25 5. A metal halide lamp according to claim 3, wherein a heat treatment is applied to the raw material

of the metal halide under an inert gas atmosphere.

6. A metal halide lamp according to claim 1,  
wherein the metal halide contains an excessively large  
amount of the metal component relative to the  
5 stoichiometric amount.

7. A metal halide lamp according to claim 1,  
wherein the light-emitting material includes a first  
metal halide formed of a halide of at least one metal  
selected from the group consisting of sodium, scandium  
10 and a rare earth element, and a second metal halide  
formed of a halide of at least one metal selected from  
the group consisting of zinc, magnesium, iron, cobalt,  
chromium, nickel, manganese, aluminum, antimony,  
beryllium, rhenium, gallium, titanium, zirconium and  
15 hafnium.

8. A metal halide lamp according to claim 7,  
wherein the metal halide includes a halide of at least  
zinc.

9. A metal halide lamp according to claim 7,  
20 wherein the raw material of the metal halide having  
a water content not higher than 100 ppm is sealed in  
the discharge container.

10. A metal halide lamp according to claim 9,  
wherein a vacuum heat treatment is applied to the raw  
25 material of the metal halide.

11. A metal halide lamp according to claim 9,  
wherein a heat treatment is applied to the raw material

of the metal halide under an inert gas atmosphere.

12. A metal halide lamp according to claim 7,  
wherein the metal halide contains an excessively large  
amount of the metal component relative to the  
stoichiometric amount.

13. A headlight apparatus for a vehicle,  
comprising:

the metal halide lamp according to any one of  
claims 1 to 12; and

a headlight apparatus body for a vehicle having  
the metal halide lamp arranged therein and having  
an optical axis extending in the longitudinal direction  
of the discharge container included in the metal halide  
lamp.

14. A method of manufacturing a metal halide lamp,  
comprising:

preparing a metal halide;

applying a vacuum heat treatment to the metal  
halide so as to obtain the raw material of the metal  
halide having a water content not higher than 100 ppm;

sealing the raw material of the metal halide in a  
discharge container provided with a pair of electrodes  
so as to obtain a metal halide lamp; and

lighting the metal halide lamp, followed by  
extinguishing the metal halide lamp so as to set the  
amount of water contained in the raw material of the  
metal halide in the extinguishing stage at 50 ppm or

less.

15. A method of manufacturing a metal halide lamp according to claim 14, wherein the vacuum heat treatment is carried out under a vacuum atmosphere not  
5 higher than  $1 \times 10^{-3}$  Pa and under the temperature falling within a range of between 300°C and 350°C.

16. A method of manufacturing a metal halide lamp, comprising:

preparing a metal halide;

10 applying a heat treatment to the metal halide under an inert gas atmosphere so as to obtain the raw material of the metal halide having a water content not higher than 100 ppm;

15 sealing the raw material of the metal halide in a discharge container provided with a pair of electrodes so as to obtain a metal halide lamp; and

lighting the metal halide lamp, followed by extinguishing the metal halide lamp so as to set the amount of water contained in the raw material of the  
20 metal halide in the extinguishing stage at 50 ppm or less.

17. A method of manufacturing a metal halide lamp according to claim 16, wherein the heat treatment under the inert gas atmosphere is carried out under an inert  
25 gas atmosphere of 1 kPa or less and under the temperature falling within a range of between 300°C and 350°C.

18. A method of manufacturing a metal halide lamp,

comprising:

preparing a metal halide;

sealing the metal halide in a discharge container  
provided with a pair of electrodes, followed by

5 applying a heat treatment to the metal halide under  
an inert gas atmosphere so as to obtain the raw  
material of the metal halide having a water content  
not higher than 100 ppm and subsequently sealing the  
discharge container so as to obtain a metal halide

10 lamp; and

lighting the metal halide lamp, followed by  
extinguishing the metal halide lamp so as to set the  
amount of water contained in the raw material of the  
metal halide in the extinguishing stage at 50 ppm or  
15 less.

19. A method of manufacturing a metal halide lamp  
according to claim 18, wherein the heat treatment under  
the inert gas atmosphere is carried out under an inert  
gas atmosphere of 1 kPa or less and under the tempera-  
20 ture falling within a range of between 300°C and 400°C.